

AGASTHYA OMKUMAR

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OBJECTIVE

Highly skilled ML Engineer with expertise in Machine Learning, Computer Vision and NLP. Leveraging research experience at CAIR☐DRDO and advanced training I am now seeking Data Scientist or AI☐related roles to drive impactful results in a dynamic organization.

EDUCATION

Master's in Applied Mathematics, Defence Institute of Advanced Technology 2022 – 2024

Relevant Coursework: Advanced Statistical Techniques, Machine Learning, Deep Learning, Computer Vision

CGPA: 8.26

Bachelor's in Mechanical Engineering, BNM Institute of Technology, VTU 2017 – 2021

CGPA: 8.34

SKILLS

Technical Skills Machine Learning, Computer Vision, Image Processing, OCR, NLP, Time☐Series Image Recognition, Multi☐Object Tracking, Spatial Data Analysis, GenAI, LLMs, Mathematical Modelling, Azure, AWS, LaTeX

Programming Languages Python, MATLAB, SQL, R, C#

Libraries / Frameworks NumPy, Pandas, Matplotlib, Scikit☐Learn, OpenCV, PyTorch, Streamlit, ultralytics, TensorFlow, NLTK, mmtrack, sqlite3, geopy, geopandas, geographiclib, Keras, fastdtw

OS Windows, Linux (Ubuntu)

Other Skills Corporate Communication, Leadership, Event Management, Critical Thinking

EXPERIENCE

Project Trainee Aug 2023 – Mar 2024

CAIR-DRDO, Bengaluru, KA

- 1 Conducted research on UAV-based Multi-Object Tracking in the maritime domain for surveillance and Search & Rescue operations.
- 2 Developed tracking models for specific use-cases with high accuracy, tackling problems like occlusion and re-identification using sensor data and image-recognition techniques respectively.
- 3 Developed data-fusion models for visual and sensor data to tackle occlusion and re-identification challenges.
- 4 Visualized model performance and metrics using frameworks like Streamlit.
- 5 Trained models on standalone GPU systems and edge-computing technology.

Intern Mar 2021 – Sept 2021

Cognizant, Bengaluru, KA

- 1 Underwent .NET training.
- 2 Up-skilled in Python and SQL.
- 3 Trained in SQL database design.

PROJECTS

UAV-based Maritime Multi-Object Tracking – Master's Thesis Project

Conducted research on multi-object tracking methods with a focus on integrating image-recognition techniques. Performed experiments on various object-detection models and object-tracking models such as

YOLO, transformer-based detectors, Kalman-filter-based tracking algorithms, and spatio-temporal transformers. Applied image-recognition techniques to enhance object-detection accuracy, particularly in challenging scenarios like occlusion and re-identification. Developed novel tracking algorithms that utilized AIS data to improve maritime tracking. Additionally, created a Streamlit-based GUI for visualizing model performance and facilitating ready-to-deploy solutions.

Vittiya Anveshak

Built a fund-trail analysis tool implemented in a web-based application using Flask and Machine Learning. Hidden Markov Models were implemented to generate fund trails on datasets generated using Gen AI (CTGAN). Project presented at KAVACH, Cybersecurity Hackathon organized by AICTE, MoE's Innovation Cell, MHA, BPRD, I4C. Selected among the top 5 out of 3,900 teams nationwide.

Sign Language Recognition from Videos

Developed a sign-language recognition model using a custom LRCN (Long-Range Convolutional Network), integrating advanced image-recognition techniques to effectively recognize and interpret sign-language gestures. These techniques were crucial in accurately identifying and processing the visual features of each gesture, enabling seamless communication between the hearing-impaired and others. Successfully trained and fine-tuned the model, achieving a high accuracy rate in sign-language gesture recognition.

EDA on IBM HR Employee Attrition Data

Conducted HR-analytics exploratory data analysis (EDA) on the IBM HR Employee Attrition dataset, revealing that job roles, job satisfaction, and compensation significantly impact attrition rates, while factors such as education, experience, job involvement, and work-life balance are closely associated with employee performance. Provided actionable insights to inform HR strategies for talent retention, employee-satisfaction improvement, and organizational-performance optimization.

LEADERSHIP

- 1 Head Volunteer, International Conference on Data Management, Analytics and Innovation (ICD²MAI) 2023: Led a team of 20+ volunteers to organize the 7th ICD²MAI held at DIAT, Pune. Managed smooth functioning of paper presentations under different sections simultaneously. Coordinated with DIAT non-technical staff and hostel staff and facilitated accommodation, food, and transport facilities for ICD²MAI participants, chief guests, and other dignitaries.
- 1 Team Lead, team "CHANAKYA" for "KAVACH" Cybersecurity Hackathon: Managed a team of 5 and got selected in the top 5 of 3,900 teams for the Grand Finale conducted at GL Bajaj Institute of Technology, Greater Noida.
- 1 Captain, Chess team, BNMIT.

EXTRA²CURRICULAR ACTIVITIES

- 1 Actively contribute and maintain a GitHub profile, testing machine²learning models and creating tutorial repositories for various applications involving computer vision and deep learning.
- 1 Actively participate in chess competitions; represented DIAT in West Zoneals chess competitions and BNM Institute of Technology in VTU South Zoneals chess competition.
- 1 Founded Robotics Club at BNM Institute of Technology: Conducted workshops and trained new members in Arduino, Raspberry Pi, and basic Internet of Things (IoT) projects.